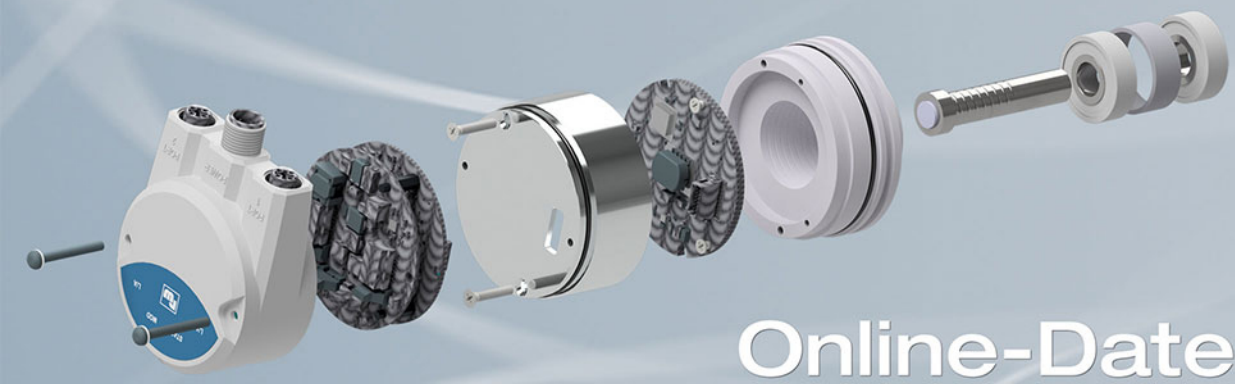
WACHENDORFF
Automation GmbH & Co. KG



Online-Datenblatt

Encoder WDGE 58B redundant incremental / absolute

www.wachendorff-automation.com/wdge58b

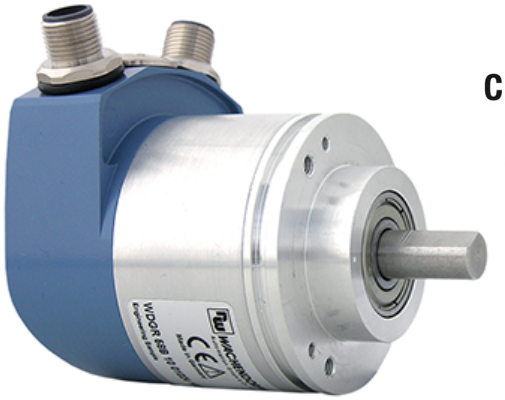
Wachendorff Automation

... systems and encoders

- Complete systems
- Industrial rugged encoders to suit your application
- Standard range and customer versions
- Maximum permissible loads
- 48-hour express production
- Made in Germany
- Worldwide distributor network

IndustrieROBUST

Encoder WDGE 58B incremental / absolute redundant, with bus cover



- Redundant: two independent encoders in one
- Diversity: two measuring principles (optical / magnetic)
- Compact design with bus cover
- optical up to 5000 ppr - 16 bit ST / 43 bit MT
- Highest bearing loads up to 220 N radial, 120 N axial

www.wachendorff-automation.com/wdge58b

Mechanical Data	
Housing	
Flange	clamping flange
Flange material	aluminum
Housing cap	steel case chrome-plated, magnetic shielding
Connection cover	zinc-plated
Housing	Ø 58 mm
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1 Ncm at ambient temperature
Shaft	Ø 6 mm
Advice	Attention: No option AAS = full IP67 version
Shaft length	L: 12 mm
Max. Permissible shaft loading radial	125 N
Max. Permissible shaft loading axial	120 N
Shaft	Ø 8 mm
Advice	Attention: No option AAS = full IP67 version
Shaft length	L: 19 mm
Max. Permissible shaft loading radial	125 N
Max. Permissible shaft loading axial	120 N
Shaft	Ø 10 mm
Shaft length	L: 20 mm
Max. Permissible shaft loading radial	220 N
Max. Permissible shaft loading axial	120 N
Shaft	Ø 9.525 mm, Ø 3/8"
Advice	Attention: No option AAS = full IP67 version
Shaft length	L: 20 mm, L: 0.787 in
Max. Permissible shaft loading radial	220 N, 22.434 kp
Max. Permissible shaft loading axial	120 N, 12.237 kp

Bearings	
Bearings type	2 precision ball bearings
Nominale service life	1 x 10'9 revs. at 100 % rated shaft load 1 x 10'10 revs. at 40 % rated shaft load 1 x 10'11 revs. at 20 % rated shaft load
Max. operating speed	8000 rpm

Machinery Directive: basic data safety integrity level	
$MTTF_d$	200 a
Mission time (TM)	20 a
Nominale service life (L10h)	1 x 10'11 revs. at 20 % rated shaft load and 8000 rpm
Diagnostic coverage (DC)	0 %

Environmental data	
ESD (DIN EN 61000-4-2)	8 kV
Burst (DIN EN 61000-4-4)	2 kV
Vibration (IEC 68-2-6)	tbd.
Schock (IEC 68-2-27)	tbd.
Design:	according DIN VDE 0160

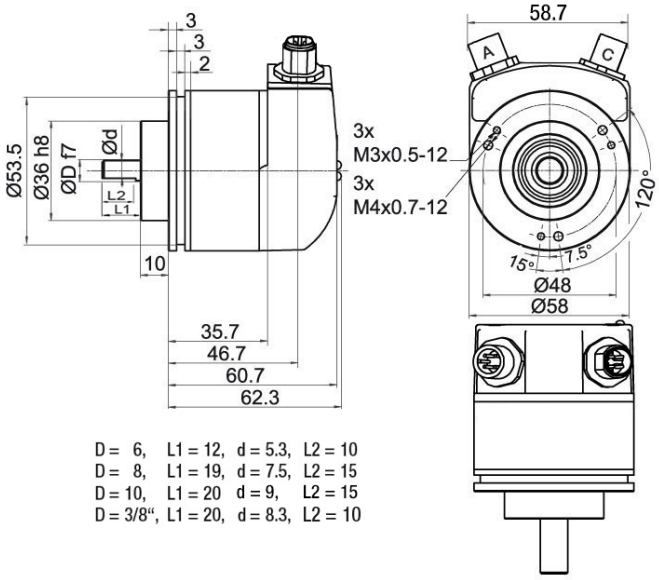
General Data	
Weight	approx. 440.5 g
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65
Operating temperature	Connector: -40 °C up to +85 °C, cable: -20 °C up to +80 °C, 1 Vpp: -10 °C up to +70 °C
Storage temperature	Connector: -30 °C up to +85 °C, cable: -30 °C up to +80 °C

More Information

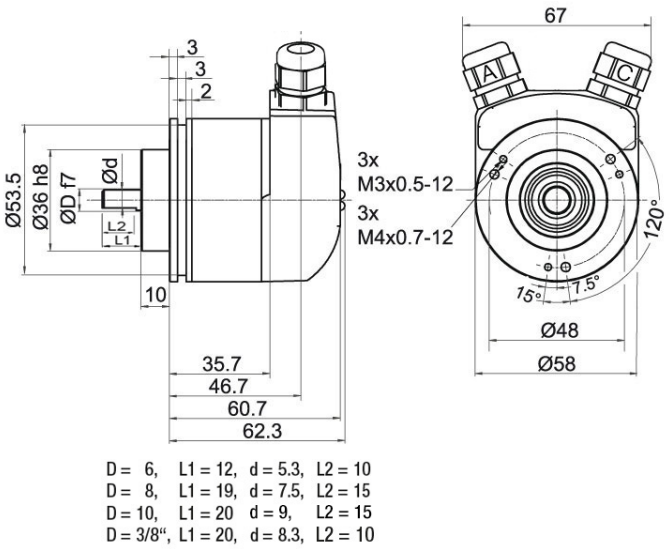
General technical data and safety instructions
http://www.wachendorff-automation.com/gtd

Options
http://www.wachendorff-automation.com/acc

WDGE58B, redundant, bus cover with 2x M12x1



WDGE58B, redundant, bus cover with 2x PG cable glands



Data incremental sensor technology

Optical sensor technology

Resolution	
Max. pulses per revolution PPR	up to 5000 PPR

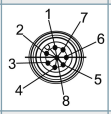
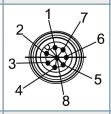
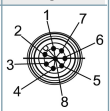
Electrical Data	
Power supply/ Current consumption	4,75 VDC up to 5,5 VDC: typ. 100 mA
	5 VDC up to 30 VDC: typ. 70 mA
	10 VDC up to 30 VDC: typ. 100 mA
Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
Pulse frequency	≤ 5000 ppr: max. 200 kHz 1 Vpp sin/cos: max. 100 kHz
Channels	ABN and inverted signals
Load	max. 40 mA / channel @ 1 Vpp sin/cos: min. 120 Ohm
Circuit protection	10 VDC up to 30 VDC, HTL only

Accuracy	
Phase offset	90° ± max. 25% of the period duration
pulse-/pause-ratio	≤5000 ppr: 50 % ± max. 7 %

WDGR 58B: Sensor-connector incremental (M12x1) SC, radial, 5-, 8-pin (PORT A)

Description		ABN inv. poss.
SC5	radial, 5-pin, connector connected to encoder housing	-
SC8	radial, 8-pin, connector connected to encoder housing	•

Assignments

	SC5	SC8	SC8	SC8
	5-pin	8-pin	8-pin	8-pin
				
Circuit	15,16,1F	15,16,1F	1C, 1D 1E, 1B,	1A
GND	3	1	1	1
+UB	1	2	2	2
A	4	3	3	3
B	2	4	4	5
N	5	5	5	-
Light reserve warning	-	-	-	-
A inv.	-	-	6	4
B inv.	-	-	7	6
N inv.	-	-	8	-
n.	-	6, 7, 8	-	7, 8
Shield	-	-	-	-

WDGE 58B: Cable connection incremental L3, radial, with 2 m cable (PORT A)

Description		ABN inv. poss.
L3	radial, shield connected to encoder housing	•

Assignments

	L3	L3	L3
Circuit	15,16,1F	1C, 1D 1E, 1B,	1A
GND	WH	WH	WH
B	BN	BN	BN
A	GN	GN	GN
B	YE	YE	GY
N	GY	GY	-
Light reserve warning	-	-	-
A inv.	-	RD	YE
B inv.	-	BK	PK
N inv.	-	VT	-
Schirm	Litze	Litze	Litze

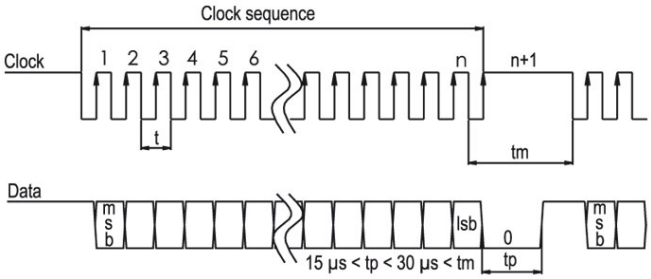
Data absolute SSI

Electrical Data	
Power supply/Current consumption	10 VDC up to 32 VDC: typ. 50 mA
Power consumption	max. 0.5 W

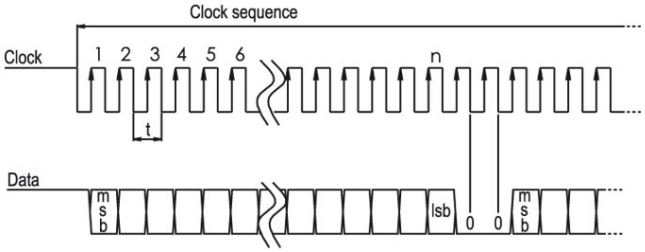
Sensor data	
Single-turn technology	innovative hall sensor technology
Single-turn resolution	up to 65,536 steps/360° (16 bit)
Single-turn accuracy	< ±0.35°
Single-turn repeat accuracy	< ±0.20°
Internal cycle time	≤ 600 µs
Multi-turn technology	patented EnDra® technology no battery, no gear.
Multi-turn resolution	up to 43 bit.

Interface	
Interface:	**SSI**
Clock input:	via opto-coupler
Clock frequency:	100 kHz up to 500 kHz, up to 2 MHz on request
Data output:	RS485/RS422 compatible
Output code:	gray or binary
SSI output:	Angular-/position value
Parity bit:	optional (even/odd)
Error bit:	optional
Turn on time:	<1,5 s
Configuration inputs Positive direction of counting: (View on shaft)	DIR = GND -> cw DIR = +UB -> ccw
Set to zero:	Set: Preset = +UB for 2 s Deaktivate: Preset = GND
LED-behaviour:	
At Start / while booting:	- red gleam (< 2.3 s)
Malfunction:	- constant red gleam (> 2.3 s)
Normal function:	- constant green gleam
No supply:	- no gleam

Transmission protocoll SSI Single transmission:

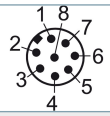


Transmission protocol SSI Multipath transmission:



Connector, M12x1, CC8, radial, 8-pin (PORT C)

Description
CC8 radial, 8-pin, shield connected to encoder housing

Assignments	
	CC8
	
GND	1
(+) Vcc	2
SSI CLK+	3
SSI CLK-	4
SSI DATA+	5
SSI DATA-	6
PRESET	7
DIR	8
Shield	housing

Cable connection, L3 with 2 m cable (PORT C)

Description	
L3	radial, shield connected to encoder housing

Assignments	
	L3
GND	WH
(+) Vcc	BN
SSI CLK+	GN
SSI CLK-	YE
SSI DATA+	GY
SSI DATA-	PK
PRESET	BU
DIR	RD
Shield	housing

Data absolute CANopen

Electrical Data	
Power supply/Current consumption	10 VDC up to 32 VDC: typ. 50 mA
Power consumption	max. 0.5 W

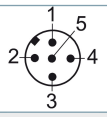
Sensor data	
Single-turn technology	innovative hall sensor technology
Single-turn resolution	65,536 steps/360° (16 bit)
Single-turn accuracy	< ±0.35°
Single-turn repeat accuracy	< ±0.20°
Internal cycle time	≤ 600 µs
Multi-turn technology	patented EnDra® technology no battery and no gear.
Multi-turn resolution	up to 32 bit with high precision value up to 43 bit.

Interface	
Interface:	**CAN**
Protocol:	CANopen • Communication profil CiA 301 • Device Profile for encoder CiA 406 V3.2 class C2
Node number:	1 up to 127 (default 127)
Baud rate:	10 kBaud up to 1 MBaud with automatic bit rate detection.
Advice:	The standard settings as well as any customization in the software can be changed via LSS (CiA 305) and the SDO protocol, e. g. PDOs, Scaling, Heartbeat, Node-ID, Baud rate, etc.
Turn on time:	<1,5 s
Programmable CAN transmission modes:	**Sychronous mode:** when a synchronisation telegram (SYNC) is received from another bus node, PDOs are transmitted independently. **Asynchronous mode:** a PDO message is triggered by an internal event. (e.g. change of measured valued, internal timer, etc.)

Connector, M12x1 CC5, 5-pin (PORT C)

Description

CC5 radial, 5-pin, shield connected to encoder housing

Assignments	
	CC5
	
(+) Vcc	2
GND	3
CANHigh	4
CANLow	5
CANGND shield	1

Cable connection, L3 radial with 2 m cable (PORT C)

Description

L3 radial, shield connected to encoder housing

Assignments	
	L3
(+) Vcc	BN
GND	WH
CANHigh	GN
CANLow	YE
CANGND shield	shield

Options

Shafts sealed to IP67, only with 10 mm shaft with flat	Order key
The encoder WDGE 58B redundant can be supplied in a full IP67 version. Max. RPM: 3500 min'-1 Permitted Shaft-Loading: axial 100 N; radial 110 N Starting-torque: approx. 4 Ncm at ambient temperature	**AAS**

120 Ohm terminating resistor	Order key
The encoder WDGE 58 CANopen is also available with fixed 120 Ohm terminating resistor.	**AEO**

Example Order No.	Type		Your encoder
WDGE 58B	WDGE 58B		WDGE 58B
	Shaft	**Order key**	
10	Ø 6 mm Attention: No option AAS = full IP67 version	06	
	Ø 8 mm Attention: No option AAS = full IP67 version	08	
	Ø 10 mm	10	
	Ø 9,525 mm Ø 3/8" Attention: No option AAS = IP67 all around possible	4Z	
	Single-turn Resolution absolute	**Order key**	
12	Single-turn resolution 1 bit up to 16 bit: (e. G. 12 bit)	12	
	Multi-turn Resolution absolute	**Order key**	
12	Multi-turn up to 43 bit (e. G. 12 bit) No Multi-turn = 00	12	
	Pulses per revolution PPR incremental		
05000	100, 120, 127, 180, 200, 250, 254, 300, 360, 512, 600, 628, 720, 750, 800, 810, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 4685, 5000 1 Vpp Sin/Cos only 1024, 2048		
	Channels optical and magnetic		
3	ABN		3
	Data protocol	**Order key**	
SI	SSI binary	SI	
	SSI grey	SG	
	CANopen	CO	
	Electrical connections absolute	**Order key**	
	Cable:		
	radial, shield connected to encoder housing, with 2 m cable, IP67	L3	
	Connector:		
CC8	sensor-connector, M12x1, 8-pin, radial, IP67, shield connected to encoder housing (only SSI)	CC8	
	sensor-connector, M12x1, 5-pin, radial, IP67, shield connected to encoder housing(only CANopen)	CC5	

Output circuit incremental optical

	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key	
16	up to 2500	5 - 30	HTL	-	1F	
		5 - 30	HTL inverted	-	1E	
	up to 5000	4,75 - 5,5	TTL	-	15	
		4,75 - 5,5	TTL, RS422 comp., inverted	-	1C	
		10 - 30	HTL	-	16	
		10 - 30	HTL invertiert	-	1D	
		10 - 30	TTL, RS422 comp., inverted	-	1B	
	1024, 2048	4,75 - 5,5	1 Vpp sin/cos	-	1A	

Electrical connections incremental optical

	Description	ABN inv. poss.	Order key	
SC8	**Cable: length (2 m standard)**			
	radial, shield connected to encoder housing	•	L3	
	Connector: (connector connected to encoder housing)			
	Sensor-connector, M12x1, 5-pin, radial	-	SC5	
	Sensor-connector, M12x1, 8-pin, radial	•	SC8	

	Optionen		
	Description	**Order key**	
	Without option	Leer	
	Shafts sealed to IP67, only with 10 mm shaft with flat	AAS	
	120 Ohm terminating resistor (only CANopen)	AEO	

Ex. Order No	WDGE 58B	10	12	12	05000	3	SI	CC8	16	SC8		WDGE 58B					3						Your encoder

For further information please contact our local distributor.
Here you find a list of our distributors worldwide.
https://www.wachendorff-automation.com/

WACHENDORFF

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